

REMARKS

This amendment is submitted in full compliance with the Office Action of June 13, 2005.

By reason of this amendment, it is submitted the instant application is in condition for allowance; and notice to that effect is respectfully solicited.

At paragraph 1 of the office action under reply, the Examiner objects to the form of amendment to the specification submitted in the last amendment filed March 29, 2005; and at paragraph 2 the Examiner objects to the drawings as being improper.

Applicants have cancelled the drawings submitted on March 29, 2005 and have amended the specification by presenting the originally filed appendices as: (a) text in the specification; and (b) new drawing Figures 4 - 57. The amended specification is submitted as a substitute specification with markings showing all the changes relative to the immediate prior version of the specification of record, in accordance with 37 CFR 1.125 (c). Also enclosed is a clean version of the substitute specification. The substitute specification includes no new matter.

At paragraph 5 of the office action under reply, the Examiner rejects claims 1, 2, 4, 9, 15, 16, 18 and 23 under 35 USC 103(a) as being unpatentable over Elder (US Patent No. 5,659,546) in view of Murphy (2004/0041599). Applicants respectfully traverse the rejection.

As is noted in the text of Elder, the purpose of Elder is to reduce the overall frequency range of an incoming signal to within an appropriate Nyquist band so that the signal can be easily digitized. This repositioning of the signal portions are permanent, and indeed are required for the system to work.

A wideband frequency signal digitizer and method for digitizing a wideband frequency signal provide for optimally positioning a segment of the wideband frequency signal within a Nyquist band of an analog-to-digital converter. Remaining segments of the wideband frequency signal are closely positioned relative to the first segment such that the entire wideband frequency signal is easily digitized using a single or multiple analog-to-digital converters operating at

reduced sampling rates while concomitantly reducing or eliminating undesirable spurious signals from the resulting digitized signal.

As is further discussed in the specification of Elder, and as depicted in, for example, his Figures 4B, 5C, and 5H, the repositioning of the frequency components is permanent. Therefore, while the newly produced signal may be easier to digitize, and may be acceptable for the application then being performed, it is not “a substantially correct representation of the original input signal over the original frequency range” as recited in amended independent claims 1 and 15. Indeed, not only is the output signal different from the input signal, but the particular purpose of Elder is to reduce the final frequency range to fit within the appropriate Nyquist band.

However, as is set forth in Applicants' claims 1 and 15, the incoming signal is split, one of the split signals is frequency converted, the split signals are digitized, the frequency converted signal is converted back to its original frequency range, and the split signals are recombined. Elder does not discuss or even suggest the conversion back to the original frequency range. While Elder attempts to reduce frequency range to each digitization, the present invention presents a digital signal that is a substantially correct representation of the original input signal over the original frequency range. Applicants submit that Elder does not teach the elements of independent claims 1 and 15.

Murphy was relied upon by the Examiner for a description of a low-distortion sinusoid. Applicants previously added this limitation from originally presented claims 3 and 17 into independent claims 1 and 15 as the Examiner had indicated that this was allowable subject matter. As the Examiner has withdrawn his prior opinion, applicants have similarly removed these elements from each of the independent claims, and have represented them as new dependent claims 29 and 30. Applicants therefore submit that Murphy does not cure the defects noted above with respect to Elder.

The invention defined by independent claims 1 and 15 is not shown in the combination of references relied upon by the Examiner. Furthermore, claims 2, 4, 9, 16, 18 and 23 depend, either directly or indirectly, from either independent claim 1 or 15 and are allowable for this reason alone. These claims also present independently patentable combinations in their own right. Applicants respectfully request that the rejection of claims 1, 2, 4, 9, 15, 16, 18 and 23 under 35 USC 103(a) be withdrawn.

At paragraph 6 of the office action under reply, the Examiner rejects claims 7 and 21 under 35 USC 103(a) as being unpatentable over Elder in view of Murphy as applied to claims 1 and 15 above, and further in view of McGeehan et al. (US Patent No. 5,950,119). Applicants traverse the rejection.

Claims 7 and 21 depend from independent claims 1 and 15 respectively, and are therefore patentable for this reason alone. The addition of McGeehan et al. fails to cure the defect of the combination of Elder and Murphy noted above. Claims 7 and 21 also present independently patentable combinations in their own right. Applicants therefore respectfully request that the rejection of claims 7 and 21 under 35 USC 103(a) be withdrawn.

Applicants note with appreciation the allowance of claims 10-14 and 24-28. The Examiner also indicated that claims 5, 6, 8, 19, 20 and 22 define allowable subject matter, but were objected to as being dependent upon a rejected base claim. Applicants submit however, that base independent claims 1 and 15 are now in condition for allowance, and therefore claims 5, 6, 8, 19, 20 and 22 are similarly in condition for allowance.

As noted above, Applicants have presented new dependent claims 29 and 30 to represent subject matter originally presented in cancelled claims 3 and 17. Applicants submit that these claims respectfully depend from independent claims 1 and 15, and are therefore allowable.

CONCLUSION

Applicants have made a diligent effort to place claims 1, 2, 4-16 and 18-30 and the present application, in condition for allowance, and notice to this effect is earnestly solicited. If the Examiner is unable to issue a Notice of Allowance regarding these claims, the Examiner is requested to contact the undersigned attorney to discuss any further outstanding issues.

Early and favorable consideration are respectfully requested.

Respectfully submitted,
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Encs. - New Formal Drawings (Figs. 4-57)
- Replacement Drawing (Fig. 1)
- Marked-up Version of Fig. 1

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IN THE DRAWINGS:

Please delete Figs. 4A - 4P and Figs. 5A - 5P as submitted by the amendment filed March 29, 2005.

Please add new drawing Figs. 4 through 57, as set out in the enclosed drawings.

Please replace Fig. 1 with attached replacement Fig. 1. The attached replacement Fig. 1 incorporates those changes shown in the enclosed marked-up version.

Waveform 103 is corrected to be consistent with waveform 115.

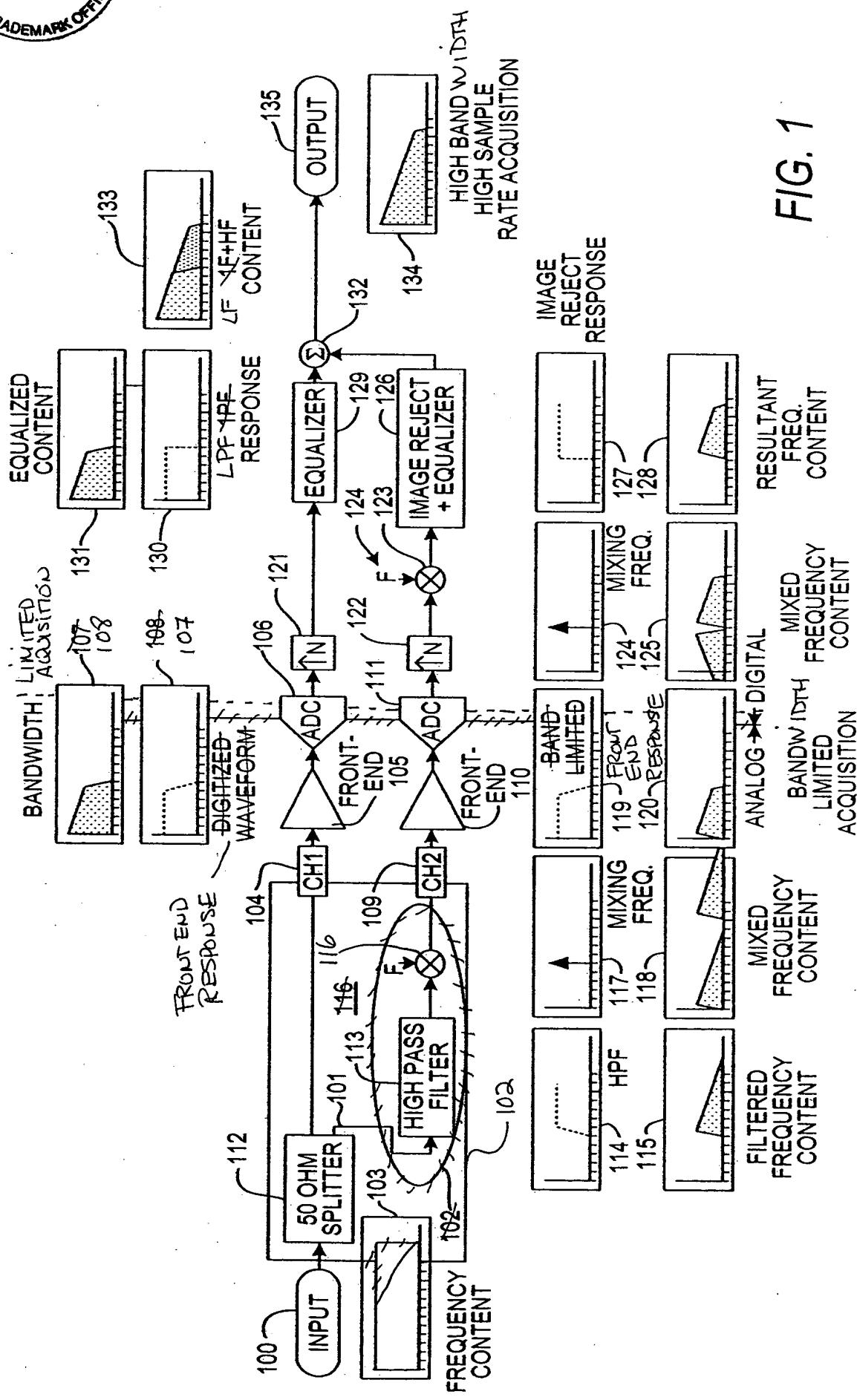


FIG. 1